DOCUMENT RESUME

ED 179 308 PS 011 047

AUTHOR Wishon, Phillip: And Others
TITLE Accelerating Peer Social Interaction of a Preschool Isolate Through Play.
PUB DATE Sep 79
NOTE 36p.: Paper presented at the Annual Meeting of the American Psychological Association (87th, New York, NY, September 1-5, 1979)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS Individual Development: Intervention: *Operant Conditioning: *Peer Relationship: *Play: *Preschool Children: Preschool Education: Reinforcement: Social Development: *Social Isolation: *Social Relations

ABSTRACT

Play intervention as an adjunct treatment for accelerating peer social interaction of a preschool isolate was examined. Teacher reinforcement of indoor play equipment utilization was employed as a procedure to increase an asocial four-year-old female subject's social interaction with peers. Touching peers, using peer names, verbalizations, solitary or parallel manipulation, cooperative construction and cooperative thematic play were the dependent variables. The treatment phases were effective in increasing the behaviors with an accompanying reduction in the subject's duration of solitary or parallel manipulation. The results suggest that a reinforced play intervention is an effective means of increasing social interaction among preschoolers. (Author/RH)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED179308

PS011047

U S DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

ACCELERATING PEER SOCIAL INTERACTION of a PRESCHOOL ISOLATE THROUGH PLAY

Phillip Wishon
East Tennessee State University

Robert S. Spangler
East Tennessee State University

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

Phillip Wishon

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

Linda G. Keller
East Tennessee State University

ACCELERATING PEER SOCIAL INTERACTION

of a PRESCHOOL ISOLATE THROUGH PLAY

Abstract

Play intervention as an adjunct treatment for accelerating peer social interaction of a preschool isolate was examined. Teacher reinforcement of indoor play equipment utilization was employed as a procedure to increase an asocial four-year-old female S's social interaction with peers. Touching peers, using peer' names, verbalizations, solitary or parallel manipulation, cooperative construction and cooperative thematic play were the dependent variables. The treatment phases were effective in increasing the behaviors with an accompanying reduction in the S's duration of solitary or parallel manipulation. The results suggest that a reinforced play intervention is an effective means of increasing social interaction among preschoolers.

ACCELERATING PEER SOCIAL INTERACTION

of a PRESCHOOL ISOLATE THROUGH PLAY

Several behavioral procedures have been used to increase the interpersonal concomitants of peer social interaction through the medium of play. Keogh (1973) employed teacher priming and the presence of gross motor play equipment to increase the levels and duration of appropriate social interactions of a 2-½-year-old male. Levison (1971) paired children who dispensed social rewards at a relatively high rate with children who received and dispensed rewards at a low rate to increase verbalizations and cooperative play. Shores (1976) used active teacher involvement and teacher structured free-play to ameliorate social interaction deficits among young behaviorally handicapped children. Buell (1968) used priming techniques in order to accelerate play equipment utilization. Other researchers (Holmberg, 1972; Patterson, 1976; Brenner, 1976) have likewise utilized behavioral procedures to investigate the relationship between social interaction and play experiences among young children.

The value of thematic play experiences for enhancing the intellectual and emotional growth of young children has been explicated by Almy (1966), Herron and Sutton-Smith (1971), Leiberman (1965), Curry (1974), Sutton-Smith (1971a), Vygotsky (1967), Athey (1974), Berlyne (1968), Biber (1968), Hunt (1968), and Wolfgang (1974). Kritchevsky (1969) and Wolfgang (1977) have discussed procedures for structuring the young child's play environment as a menas for stimulating interpersonal interchange with peers and for encouraging more complex levels of play equipment utilization.

METHOD

Subject and Setting

The S was a four-year-old female attending the Child Study Center at East Tennessee State University. Her teachers noted that she did not participate in activity centers with her peers. Specifically the S did not talk to peers, touch peers, or engage in cooperative play activities.

The Child Study Center is a self-contained preschool facility for family-grouped four- and five-year-olds. Two certified early childhood teachers assisted by two student teachers were responsible for the operation of the program. Accessible for use by the staff and 35 children were one large learning area divided into activity centers for small group use, and an adjacent standard sized classroom designed for use by eight to twelve children.

The experiment took place during the daily one-hour free choice period during which the children were encouraged to participate in at least two different learning centers. Equipment in the experimental classroom included several sets of large building blocks, two large interlocking plastic climbing cubes, two large rocking "boats," a multi-unit climbing frame (removed in a later phase), several chairs, and a varied assortment of life-sized dress-up and housekeeping props.

Design

It was assumed that an increase in the S's play equipment utilization in close proximity with other children would vicariously reinforce (her) interaction with peers (Keogh and others, 1973). While in the playroom, the duration of time engaged in solitary or parallel manipulation, cooperative construction, and cooperative thematic play by the S was recorded. In order to accurately determine the socialization effects of play, the number of times the S touched peers, used peers' names, and verbalized were recorded.

Definitions

Solitary or Parallel Manipulation - behavior characterized essentially by interactions with the environment by an individual performing exclusively alone or, if in near proximity to another, with regard to strict egocentric disposition in terms of utilization of materials, thematic content, and verbalization.

Cooperative Construction - product-oriented behavior characterized by an individual's reliance on the assistance of at least one other person in the creation process or in the process of defining and elaborating upon anticipated utilization of environmental resources.

Cooperative Thematic Play - behavior in which an individual transforms himself (in pretend play) to be a person or object other than himself as indicated by his verbal and/or motoric enactment of his perception of that role. In addition, modes of interpersonal transaction are demonstrated by the individual's awareness of, empathy for, and accommodation to at least one other person in a fashion of give-and take in a make believe situation (Curry, 1974, pp. 274, 276).

Verbalization - verbalization within three feet of a child or teacher.

Touching - physical contact between S and peers initiated by the S.

Using Names - S's use of individual's formal names, titles, nicknames in a reality or make-believe situation.

Procedure

Each day the S together with six to eight agemates was accompanied to the playroom by one of the teachers and an experimenter. Opportunities for observation were constrained by the teacher's concern that all children participate in the thematic play activity. Therefore, daily periods of observation were variable in length.

Baseline 1

Baseline data were collected on the S's play behaviors.

Teacher Prime

While the S was in the playroom, the teacher primed the S's use of play equipment and provided social reinforcement contingent upon use of play equipment. Priming consisted of leading the S to the play equipment and placing her on that equipment in the presence of peers. Priming also constituted the solicitation of the S's help in arranging play materials, as well as questioning tactics.

Playmate Selection

A sociometric test was administered to the S. All peers in the playroom environment during observation were selected on the basis of the S's sociometric preferences. Equipment for physical exercise was removed, and materials central to homemaking activities were added to the playroom. Teacher initiated priming and social reinforcement were continued as in the previous phase.

Peer Prime

This phase was characterized by peer initiated priming and reinforcement. Prior to each experimental session, peer playmates were informed by the teacher that they would receive a surprise at the end of the play period if the S participated in the play activities. The surprise consisted of a different snack each day such as: donuts, hot chocolate, cider, cookies, and oranges. Playmates and play equipment remained the same as in the previous phase. Teacher initiated priming and social reinforcement were terminated.

Extinction

Data were collected on the S's play behaviors in the absence of experimenter manipulation.

Results

Reliability data were collected for all behaviors during each phase of the experiment. Percent of observer agreement was calculated using the formula:

$$\text{Percent Agreement} = \frac{\text{Agreements}}{\text{Agreements + Disagreements}} \times 100$$

The average reliability for all behaviors follows: verbalizations, 96%' touching, 100%; names, 100%; solitary or parallel manipulation, 92%; cooperative construction, 92%; cooperative thematic play, 91%.

Figure 1 illustrates the frequencies of the S's verbalizations. During Baseline, frequency of verbalizations did not exceed .133, and on one occasion was at the record floor. Noticeable increases in frequency of verbalizations were demonstrated during each of the subsequent treatment phases. The frequency of verbalizations ranged from .778 to 2.3 during one treatment (Teacher Prime phase). The Playmate Selection phase of the treatment revealed a frequency range of .842 to 3.77 for verbalizations. During the Peer Prime phase of the treatment, the frequency of verbalizations reached a high of 6.27 and dropped no lower than 2.85.

Data collected during the first extinction period reveal an initial increase in verbalization frequency after a step-down from treatment, from .39 to 1.6 and then a sharp deceleration effect to a level of zero during the recording period.

During the Repeat Playmate Selection phase, frequency of verbalization ranged from 1.44 to 6.60. From a high of 4.45, frequency of verbalization did not fall below 3.05 during the second period of extinction. From single

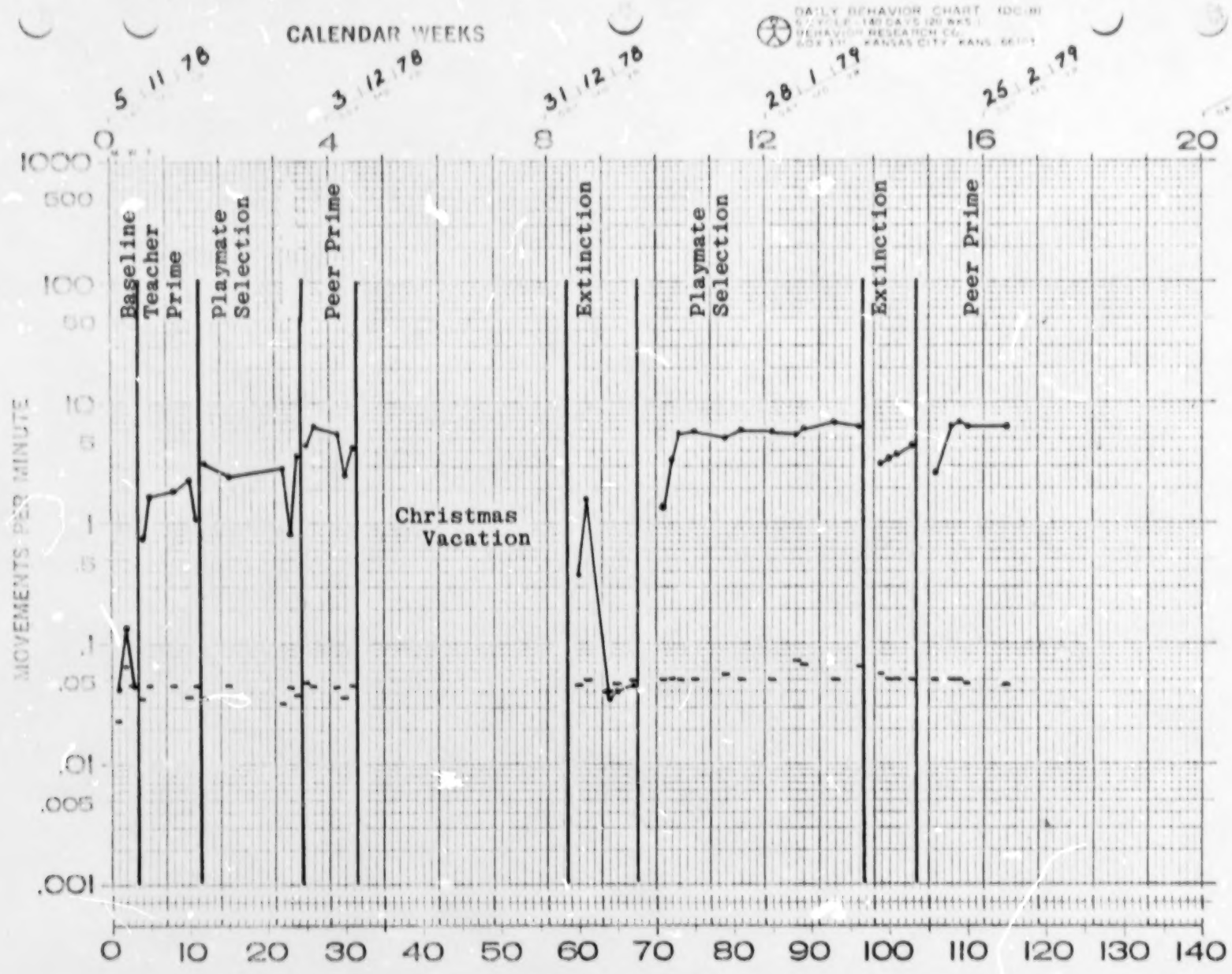


FIGURE 1

R Spangler — SUPERVISOR
P Wishon — ADVISER
P Wishon — MANAGER
DEPOSITOR
ETSU CHILD STD. CTR. — AGENCY

Nikki — BEHAVER
4 — AGE
Stdt. Verbalizations — LABEL
MOVEMENT
L. Keller — CHARTER
Frequency

observed frequency of 2.73 during the Repeat Peer Prime phase, frequency of verbalizations accelerated rapidly and remained steady with a range of 6.45 to 7.67.

Frequency of touching peers is represented in Figure 2. Frequencies of this behavior remained below or at the record floor during Baseline. Beginning with the Teacher Prime phase of the treatment during which the frequency of touching peers ranged from .0435 (record floor) to .148, the data shows an acceleration trend across treatment phases. During the final treatment phase (Peer Prime), touching behavior accelerated with frequencies ranging from .19 to .5. Deceleration to a level consistent with Baseline can be noted during initial extinction. Frequency range for this period varied from a high of .1 to zero during the recording period.

Frequency of touching peers ranged from .100 to .500 during the Repeat Playmate Selection phase. Throughout the second extinction period, frequency of touching peers remained fairly steady with a range of .200 to 400. A pattern of unsteady but relatively high frequency of touching peers is observable in the Repeat Peer Prime phase, as a range of .136 to .667 was recorded.

The frequency of using peers' names in conversation is illustrated in Figure 3. Frequency levels for this behavior remained below the record floor thoughout Baseline. Frequency of name-using behavior was sporadic during Teacher Prime and Playmate Selection treatment phases, as levels of this activity ranged from zero for the recording period to .105. An acceleration trend can be noted at the end of Playmate Selection. A sustained increase in the frequency of using peers' names is observable in the Peer Prime phase. The initial frequency observed was at .048 (record floor).

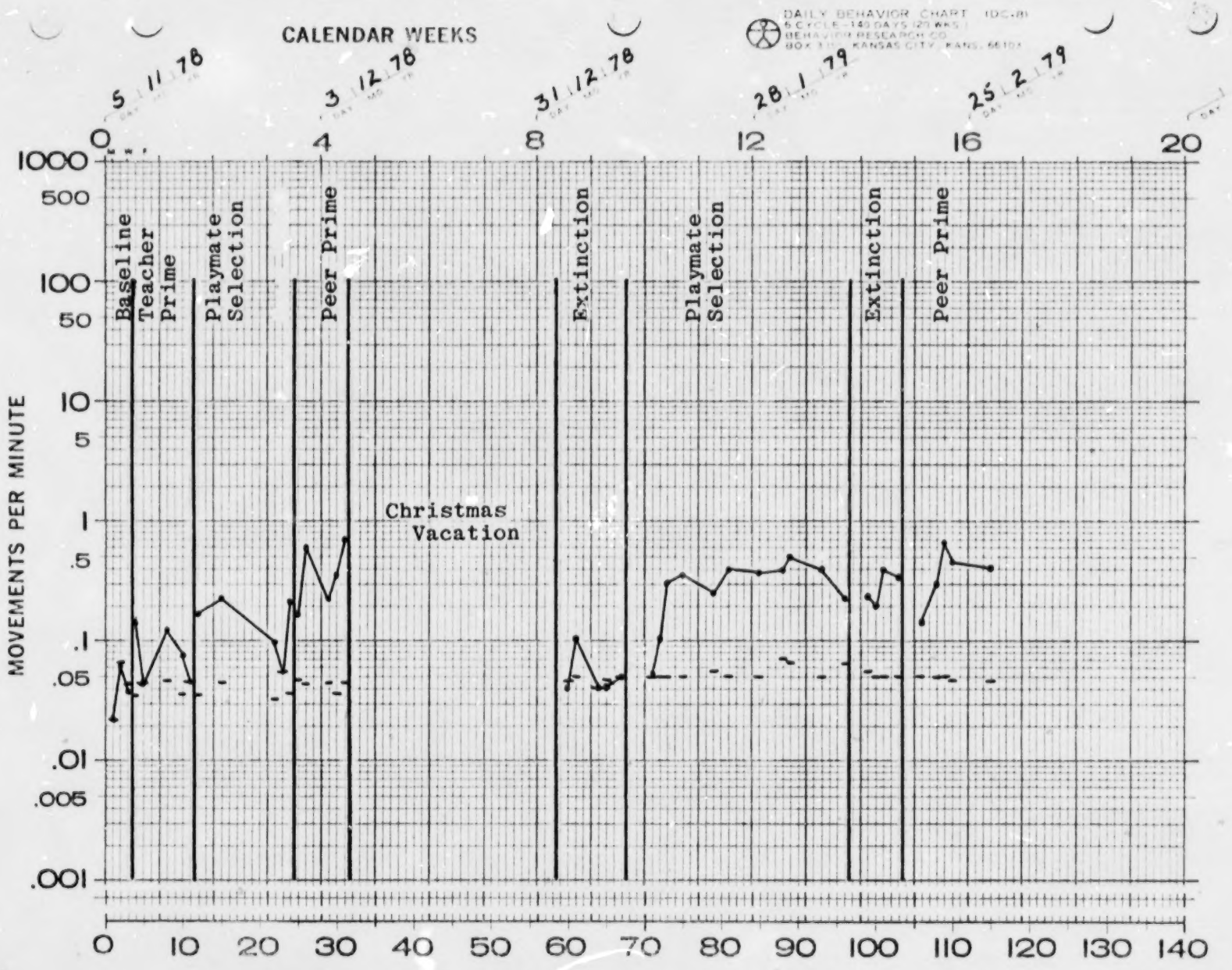


FIGURE 2

12

13

R Spangler — SUPERVISOR
Wishon — ADVISER
P Wishon — MANAGER
ETSU CHILD STD. CTR. — AGENCY
DEPOSITOR

Nikki — BEHAVER
4 — AGE
Stdt. — LABEL
Touching Peers — MOVEMENT
L. Keller — CHARTER
Frequency

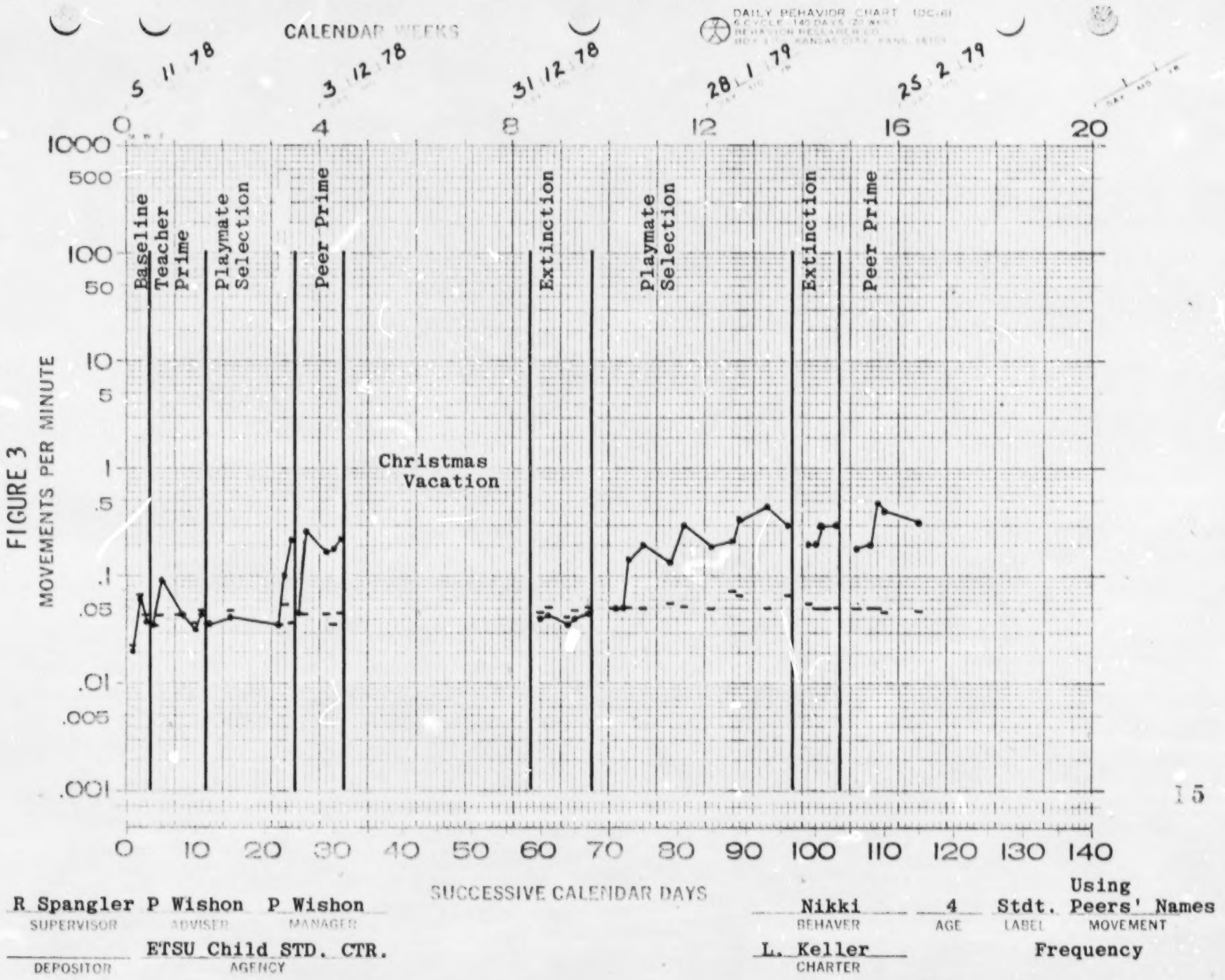


FIGURE 3

14

15

R Spangler — SUPERVISOR
P Wishon — ADVISER
P Wishon — MANAGER

Nikki — BEHAVER
4 — AGE
Stdt. — LABEL
Using Peers' Names — MOVEMENT

DEPOSITOR

ETSU Child STD. CTR. — AGENCY

L. Keller — CHARTER

Frequency

From there it accelerated to .273 and was maintained above .174 throughout the remainder of Peer Prime.

Original extinction period data reveals a deceleration to zero. An acceleration trend for using peer names is manifest during the Repeat Playmate Selection phase as a range of .050 to .450 was observed. Frequency of using peers' names during the second extinction period revealed a noticeable acceleration trend as a range of .200 to .300 was noted. An acceleration trend can also be noted during the Repeat Peer Prime phase. From an initial low of .182, frequency of using peers' names rose to a high of .476.

When interpreting a duration chart, trends have an opposite appearance. One must interpret a deceleration as an increase in the target behavior (Cooperative Thematic Play) and an acceleration as a decrease in the target behavior.

It was the objective of the experimenter to accelerate and maintain the S's duration of on task solitary parallel manipulation to a level above the criterion line. At the same time, it was hoped that S's on task duration of cooperative thematic play would substantially decelerate from baseline levels above the criterion line.

Duration on task with respect to S's solitary or parallel manipulation is depicted in [illegible]. During Baseline, the duration on task of solitary or parallel manipulative activity ranged from .023 to .048. During the subsequent treatment phases, a consistent deceleration trend of solitary or parallel manipulation can be noted. On task duration fluctuated somewhat during Teacher Prime; but during Playmate Selection and Peer Prime phases of the treatment, duration remained fairly stable above the criterion line, departing only twice to a level of .33. During initial extinction, a

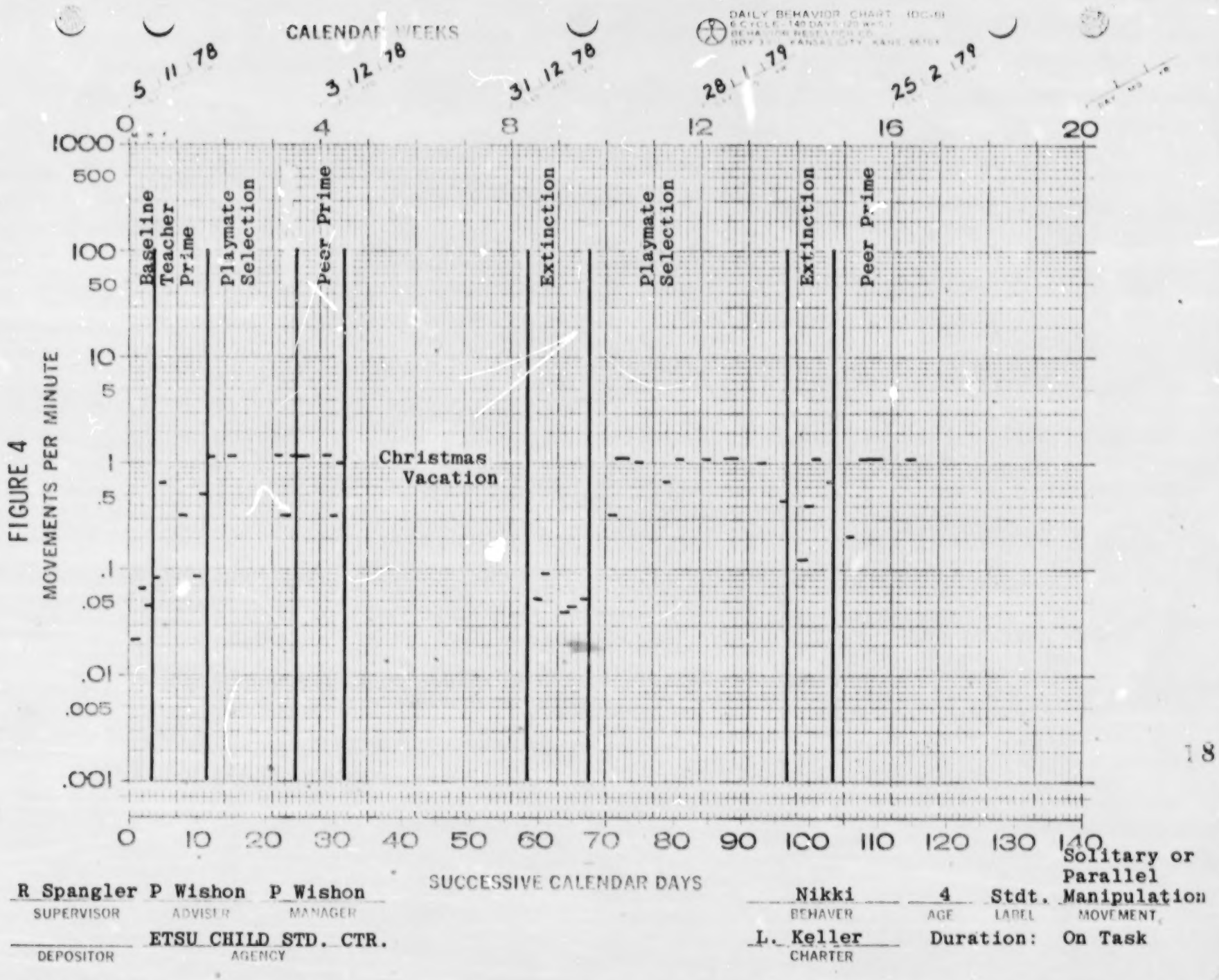


FIGURE 4

17

18

R Spangler — SUPERVISOR
P Wishon — ADVISER
P Wishon — MANAGER

DEPOSITOR
ETSU CHILD STD. CTR. — AGENCY

Nikki — BEHAVER
4 — AGE
Stdt. — LABEL
Solitary or Parallel Manipulation — MOVEMENT

L. Keller — CHARTER
Duration: On Task

reversal trend manifest during which on task duration of solitary or parallel manipulation ranged from .04 to .09.

Throughout the Repeat Playmate Selection phase, on task duration of solitary or parallel manipulation remained fairly steady at a level above the criterion line primarily. A high degree of variability characterizes the second period of extinction as on task duration levels ranged from .129 to above the criterion line. Observed levels of on task duration of S's solitary or parallel manipulation remained constant above the criterion line during the Repeat Peer Prime phase after accelerating dramatically from an initial low point of .222.

Figure 5 illustrates duration off task of S's solitary or parallel manipulation. Observed duration episodes off task were confined to levels which ranged from above the criterion line to .33. Beginning with the Teacher Prime phase of the treatment during which the duration of solitary or parallel manipulative activity ranged from .047 to .066, the data shows a steady profile at a decelerated level across treatment phases. Observed duration levels throughout the latter two treatment phases were characterized by little variability with recorded ranges of .032 to .0625. First period extinction data reveals an acceleration trend as the duration of solitary or parallel manipulation ranged from .11 to 1.1 (above the criterion line).

Throughout the final two treatment phases and the second extinction period, observed duration levels off task for solitary or parallel manipulation reflected little variability. The consistency of the off task duration levels across these three phases is dramatically demonstrated as levels ranged from .048 to .082.

On task duration of cooperative construction is represented in Figure 6. Observed levels of on task duration of S's cooperative construction

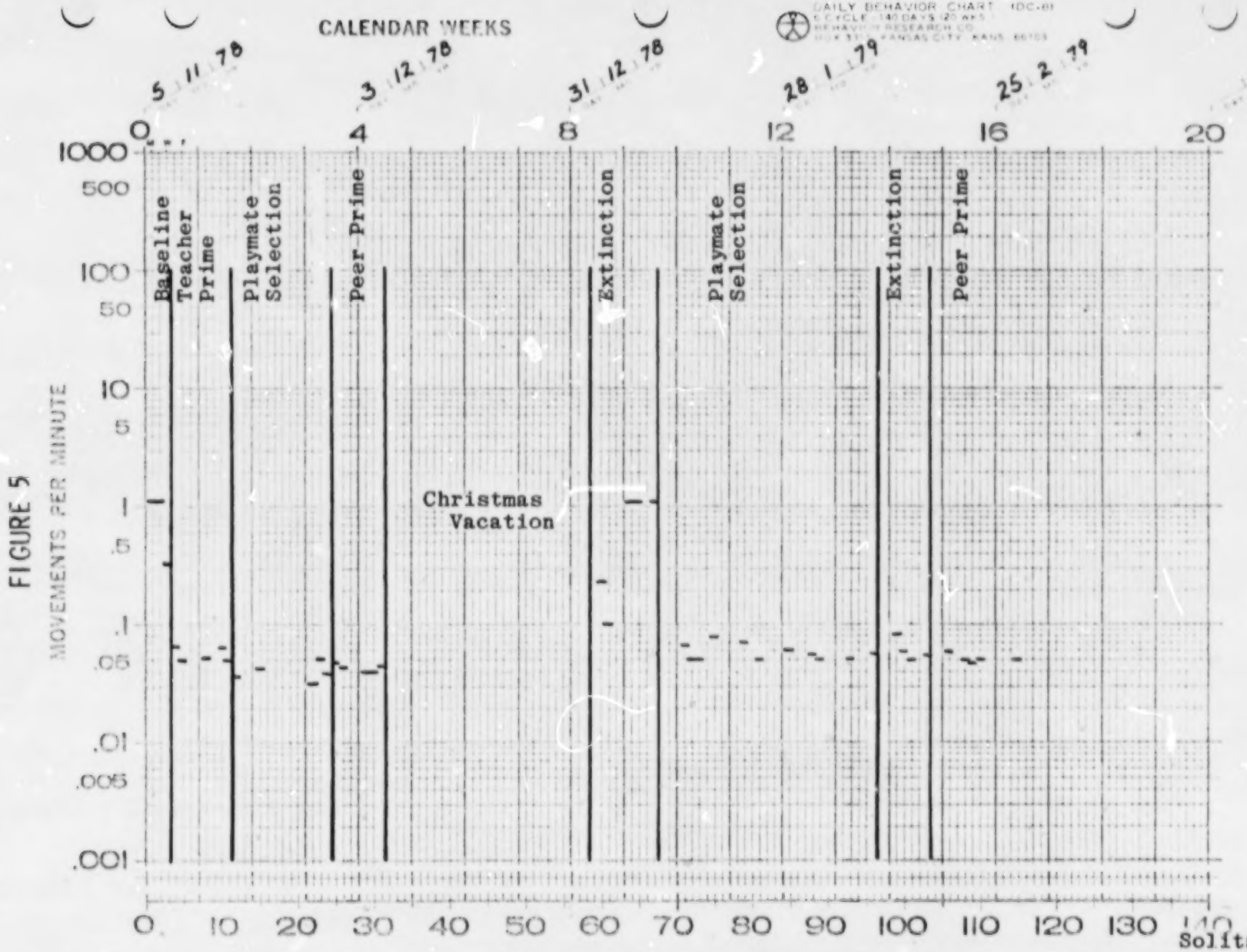
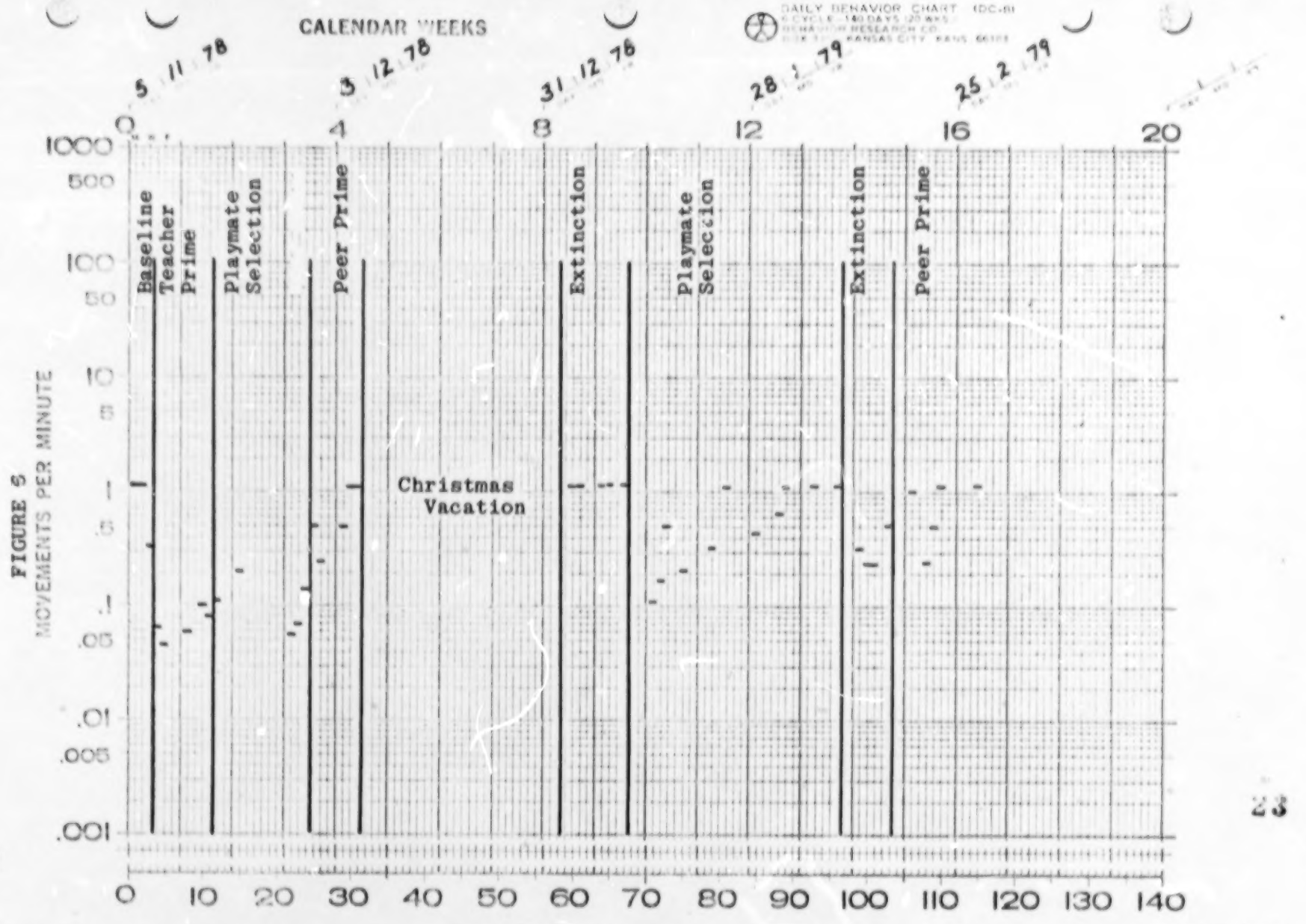


FIGURE 5

R Spangler — SUPERVISOR
P Wishon — ADVISER
P Wishon — MANAGER
ETSU CHILD STD. CTR. — AGENCY
DEPOSITOR

Nikki — BEHAVER
4 — AGE
Stdt. — LABEL
Solitary or Parallel Manipulation — MOVEMENT
L. Keller — CHARTER
Duration: Off Task



22

23

R Spangler — SUPERVISOR
P Wishon — ADVISER
P Wishon — MANAGER

DEPOSITOR

ETSU CHILD STD. CTR. — AGENCY

Nikki — BEHAVER
4 — AGE
Stdt. — LABEL
Cooperative Construction — MOVEMENT

L. Keller — CHARTER

Duration: On Task

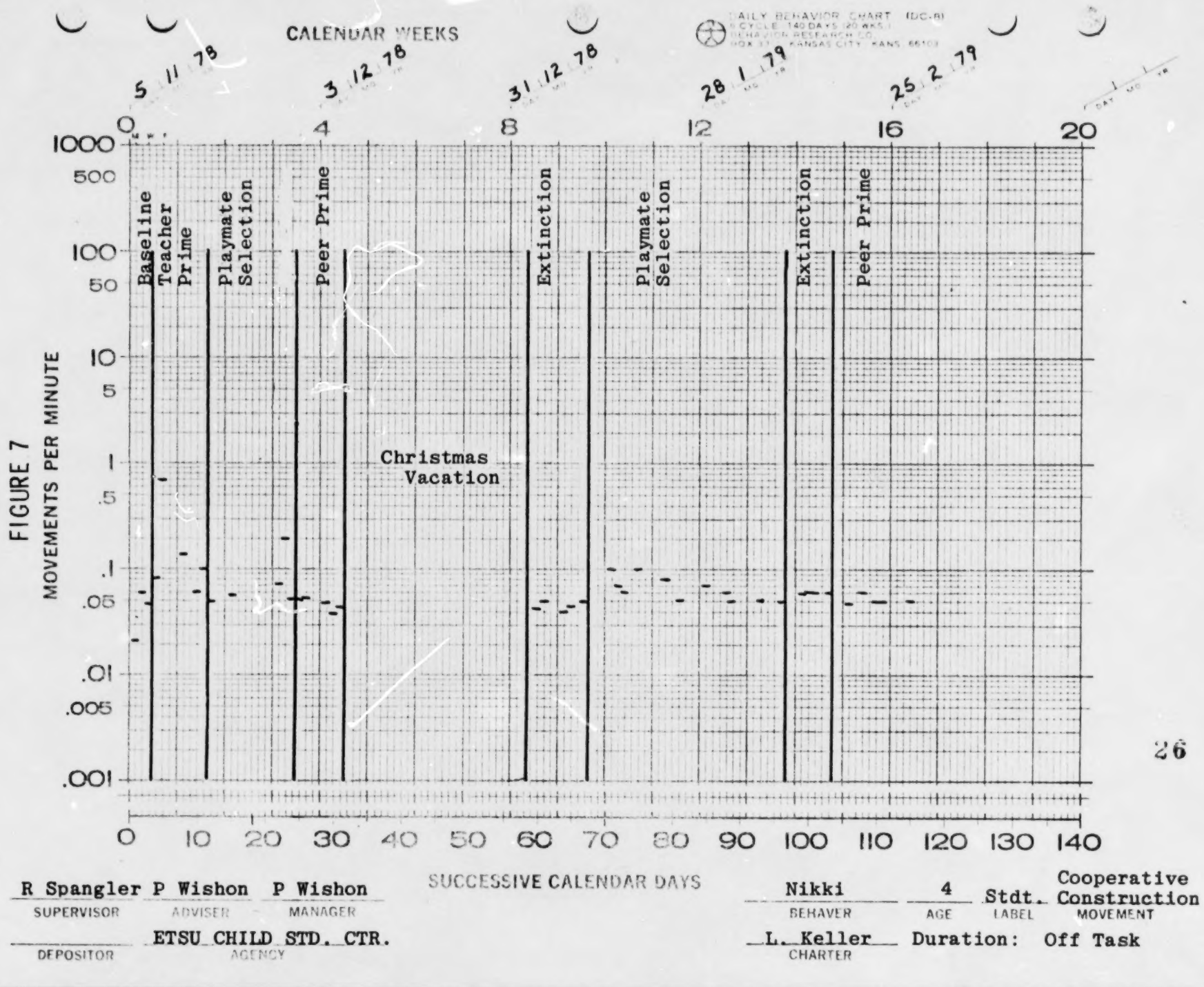


FIGURE 7

R Spangler P Wishon P Wishon
SUPERVISOR ADVISER MANAGER

ETSU CHILD STD. CTR.
DEPOSITOR AGENCY

Nikki 4 Stdt. Cooperative Construction
BEHAVER AGE LABEL MOVEMENT

L. Keller Duration: Off Task
CHARTER

During the Repeat Playmate Selection phase, duration levels off task for cooperative construction decelerated steadily from a high of .105 to a low of .05. Observed levels were stable at .06 during the second extinction period. Off task levels of cooperative construction were also fairly stable throughout the Repeat Peer Prime phase as levels ranging from .048 to .06 were observed.

Figure 8 depicts on task duration of S's cooperative thematic play. Duration of on task cooperative thematic play remained constant above the criterion line throughout Baseline. From this level, on task duration steadily decelerated during the Teacher Prime phase of the treatment to a level of .125. The deceleration trend of on task duration continued during the Playmate Selection and Peer Prime treatment phases. With the exception of one observation during which on task duration of cooperative thematic play rose to a level of .5, on task duration levels during the latter two treatment phases ranged from .043 to .077. Data collected during the first extinction period reveal an acceleration trend for on task duration of cooperative thematic play as duration levels ranged from .11 to a level above the criterion line during the recording period.

On task duration levels of cooperative thematic play manifest a steady and slightly decelerative trend throughout the final three phases of the study. Observed levels ranged from a high of .154 during Repeat Playmate Selection to numberous shared lows of .05 during the latter two treatment phases.

Figure 9 illustrates duration off task of cooperative thematic play. Observed duration events off task were unstable at levels ranging from .023 to .06 during Baseline. A slight acceleration trend can be noted regarding off task duration of cooperative thematic play during the Teacher Prime

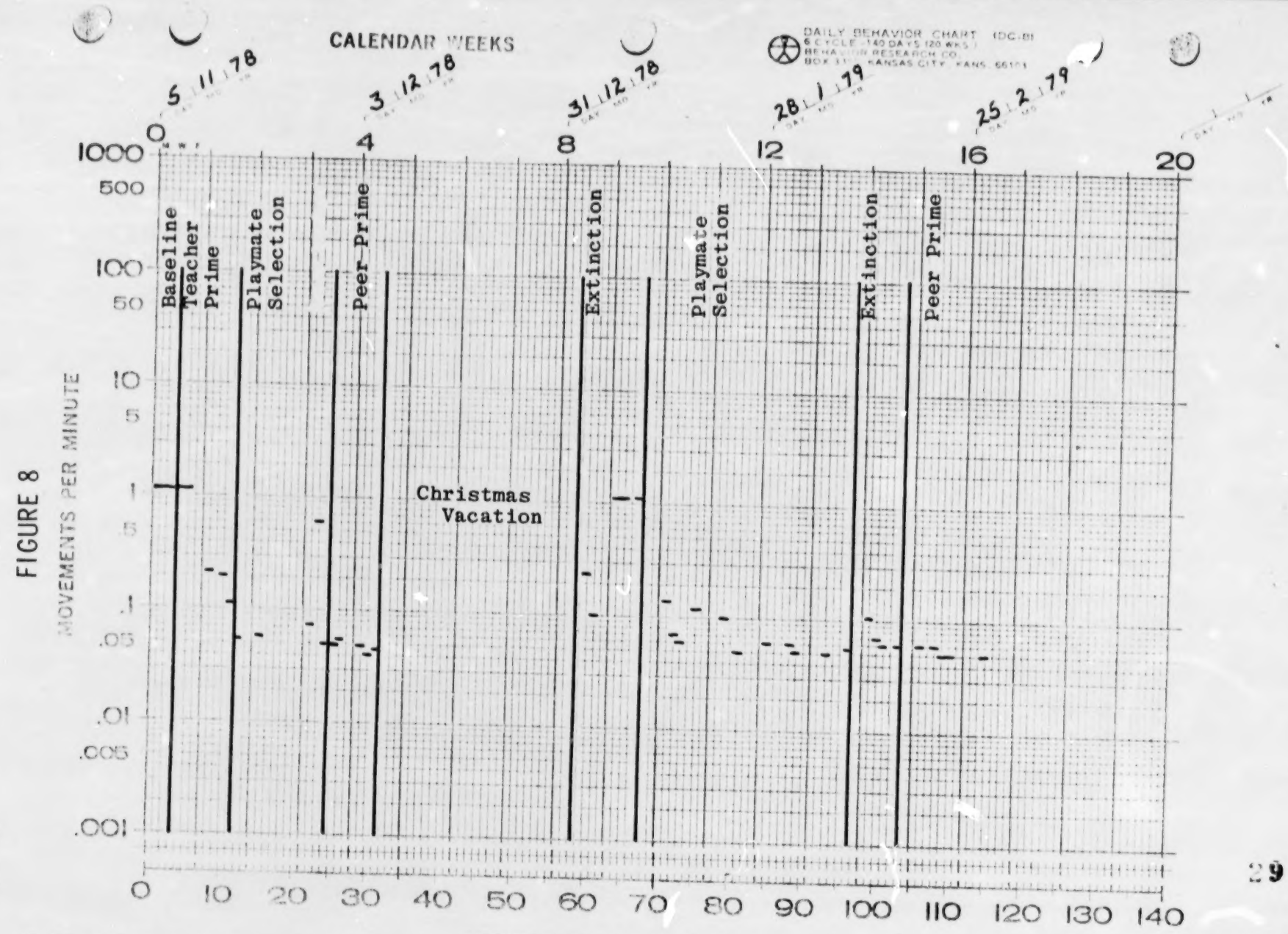


FIGURE 8

28

29

R Spangler — SUPERVISOR
P Wishon — ADVISER
P Wishon — MANAGER
DEPOSITOR
ETSU CHILD STD. CTR. — AGENCY

Nikki — BEHAVER
4 — AGE
Stdt. — LABEL
Cooperative Play — MOVEMENT
L. Keller — CHARTER
Duration: On Task

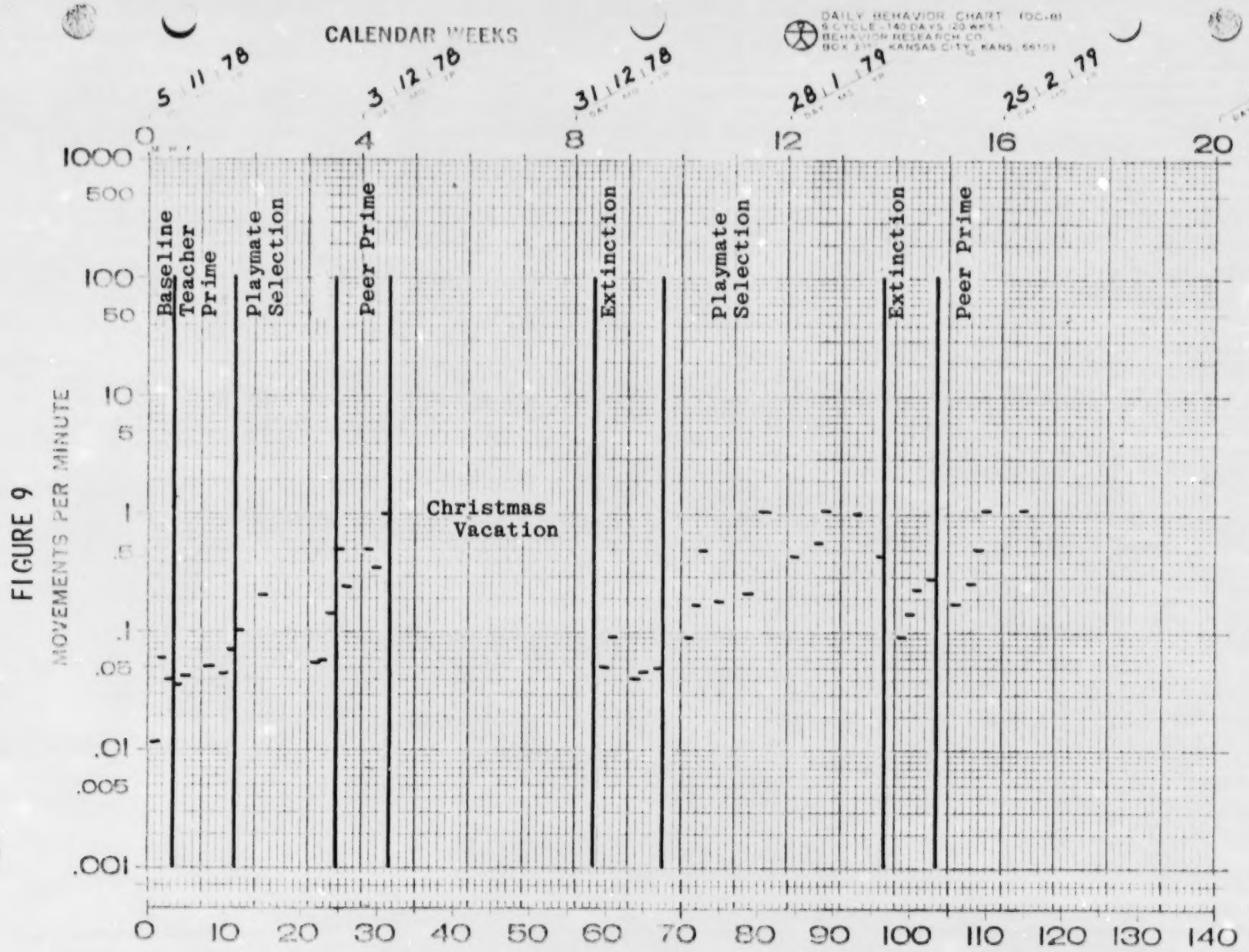


FIGURE 9

30

31

R Spangler — SUPERVISOR
P Wishon — ADVISER
P Wishon — MANAGER
DEPOSITOR
ETSU CHILD STD. CTR. — AGENCY

Nikki — BEHAVER
4 — AGE
Stdt. — LABEL
Cooperative Play — MOVEMENT
L. Keller — CHARTER
Duration: Off Task

treatment phase. Duration levels during this phase ranged from .037 to .07. Off task duration levels during Playmate Selection phase of the treatment were sporadic as observed levels ranged from .055 to .22. Off task duration levels accelerated during the Peer Prime treatment phase, illustrating less off task behavior than that observed during Playmate Selection or other phases. Off task duration levels of cooperative thematic play ranged from .25 to .5 during this phase of the treatment. Levels of off task duration decelerated noticeably during initial Extinction as a range of .04 to .09 is depicted for the recording period.

Dramatic accelerative trends for duration off task of cooperative play were observed in the last two treatment phases and in the final extinction period. During the Repeat Playmate Selection phase, off task levels accelerated steadily from a low of .087 to a high of 1.1 (above the criterion line). Steady acceleration was manifest during the final extinction period as off task levels ranged from .093 to .286. Off task levels of cooperative play topped out at levels above the criterion line after increasing steadily from an initial low of .182.

Discussion

The treatment-related data clearly demonstrate the efficacy of play equipment utilization and thematic play experiences in increasing desirable social interaction of a four-year-old female preschooler. Baseline data indicate that prior to treatment, the S did not play cooperatively or use peer's names. Only seldom did she touch peers or verbalize. The S's primarily consisted of solitary or parallel manipulation. Substantial improvement resulted in all treatment phases of the experiment.

Of particular interest to the experimenters was the effect of treatment on cooperative thematic play. Prior to this experiment, the S did not exhibit this skill in her behavioral repertoire. Observation of graphic data indicate that as solitary play decelerated, cooperative construction accelerated. Cooperative construction eventually decelerated and was replaced and maintained by the hierarchically superior activity of cooperative thematic play.

Application of treatment procedures were pragmatic, inexpersive, and transferable to most preschool classroom situations. Social reinforcement consisting of verbal praise and touching, and priming can be used by any teacher or care-giver. Treats used to reward peer during the Peer Prime phase were easily accessible. Treatment procedures are also similar to naturally occurring behavioral consequences.

Christmas vacation provided an excellent opportunity to implement a reversal phase. As evidenced, the S's desirable play and social behaviors were extinguished in the absence of treatment procedures - - accenting the reliability of treatment effects.

During subsequent treatment procedures, desirable play and social behaviors were again achieved and maintained throughout a second Extinction period. The results suggest that the S was being reinforced vicariously for these behaviors as a direct consequence of her involvement in the planned experiences.

References

Almy, M. (1966) Spontaneous play: An avenue for intellectual development. In M. Almy (Ed.), Early childhood play. New York: Selected Academic Readings, 1968.

Athey, Irene. Piaget, play, and problem solving. In Doris Sponseller (Ed.), Play as a learning medium. Washington, D. C.: NAEYC Publication, 1974.

Berlyne, Daniel E. The development of intelligent behavior, II: Daniel F. Berlyne. Psychology in the Schools, 1968, 5.

Biber, Barbara, and Franklin, Margery B. The relevance of developmental and psychodynamic concepts to the education of the preschool child. In Millie Almy (Ed.), Early childhood play: Selected readings related to cognition and motivation. New York: Simon and Schuster, 1968.

Brenner, M. The effects of sex, structure, and social interaction on preschoolers' make-believe in a naturalistic setting. Unpublished Master's Thesis, University of Illinois, May, 1976.

Buell, Joan, Stoddard, P., Hanis, F., Baer, D. Collateral social development accompanying reinforcement of outdoor play in a preschool child. Journal of Applied Behavior Analysis, 1968, 1.

Curry, N. E., and Arnaud, S. H. Cognitive implications in children's spontaneous role play. Theory Into Practice, 1974, 4, 13.

Herron, R. E., and Sutton-Smith, B. Child's play. New York: John Wiley, 1971.

Holmberg, M. D., Thomson, C. L., Baer, D. M., Goetz, E. M., and Holt, W. J. The experimental analysis of preschool teachers' behaviors. Final report to Kansas Center for Research in Early Childhood Education, National Program on Early Childhood Education of CEMREL, U. S. Office of Education , Bureau of Research (DHEW), October, 1972.

Hunt, J. McVicker, The epigenesis of intrinsic motivation and early cognitive learning. In Millie Almy (Ed.), Early Childhood Play: Selected readings related to cognition and motivation. New York Simon and Schuster, 1968.

Keogh, W. J., Miller, R. M., and LeBlanc, J. M. The effects of antecedent stimuli upon a preschool child's peer interaction. Paper presented at the Biennial Meeting of the Society for Research in Child Development, Philadelphia, March 29 - April 1, 1973.

Kritchevsky, Sybil, Prescott, Elizabeth, and Walling, Lee. Planning environments for young children: Physical space. Washington, D. C.: NAEYC Publication, 1969.

Leiberman, J. N. Playfulness and divergent thinking: An investigation of their relationship at the kindergarten level. Journal of Genetic Psychology, 1965, 2, 107.

Levinson, C. A Use of the peer group in the socialization of the isolate child. Paper presented at the meeting of the Society for Research in Child Development, Minneapolis, Minnesota, April, 1971.

Lindsley, O. R., et al. Handbook of the standard behavior chart. Kansas City: Precision Media, 1972.

Patterson, D. S. Social ecology and social behavior: The development of the differential usage of play materials in preschool children. Paper presented at the Biennial Southeastern Conference on Human Development, Fourth, Nashville, Tennessee, April 15-17, 1976.

Shores, R. E., Hester, P., Strain, P. S., and Donofrio, A. F. The effects of amount and type of teacher-child intereaction on child interaction during free play. Psychology in the Schools, April, 1976, 13.

Sutton-Smith, Brian. The role of play in cognitive development. In R. E. Herron and Brian Sutton-Smith (Eds.), Child's play. New York: Wiley, 1971a.

Vygotsky, L. S. Play and its role in the mental development of the child. Soviet Psychology, 1967, 5.

Wolfgang, Charles H. An exploration of the relationship between the cognitive area of reading and selected developmental aspects of children's play. Psychology in the Schools, July, 1974.

Wolfgang, Charles H. Helping aggressive and passive preschoolers through play. Columbus: Charles E. Merrill Publishing Company, 1977.